

REMARKS

Applicants respectfully request that the above-identified application be re-examined.

The February 9, 2006 Office Action in the above-identified application ("Office Action") rejected Claims 1 and 2, the only claims previously in this application. Claim 1 was rejected under 35 U.S.C. § 102(b) as being fully anticipated by the teaching of U.S. Patent No. 5,204,033 (Pearce et al.). In addition, Claim 2 was rejected under 35 U.S.C. § 103(a) as being unpatentable in view of the teachings of Pearce et al. taken in view of the teachings of U.S. Patent No. 5,716,686 ("Black"). While applicants respectfully disagree with these grounds of rejection, in order to advance the prosecution of this application, Claims 1 and 2 have been amended. In addition, the dependency of Claim 2, previously incorrectly stated as "2" has been corrected to "1." Further, new Claims 3-12 have been added. For the reasons hereinafter set forth, applicants respectfully submit that Claims 1 and 2, as amended, and new Claims 3-12 are clearly allowable in view of the teachings of the cited and applied references, i.e., Pearce et al. and Black, taken alone or in combination.

Prior to discussing in detail why applicants believe that all of the claims in this application are allowable, a brief description of applicants' invention and brief descriptions of the teachings of the cited and applied references are provided. The following discussion of applicants' invention and the cited and applied references are not provided to define the scope or interpretation of any of the claims of this application. Instead, these discussions are provided to help the United States Patent and Trademark Office better appreciate important claim distinctions discussed thereafter.

Invention

The present invention is directed to methods of preparing a reinforced core structure for a product to be formed in a resin transfer molding process utilizing a resin. In one form, the

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method comprises applying fibers over a core that extend beyond the final finish line of the product to be formed. A tackifier solution is applied **only** to the fibers located **at the location of** the final finish line. The tackifier solution comprises a reduced concentration of the resin utilized by the product to be formed in the resin transfer molding process. The tackifier solution is consolidated only at the location of the final finish line, and the fibers are cut along the final finish line. Preferably, the tackifier solution comprises a resin to be used in the resin transfer molding process diluted by a solvent. Further, preferably the fibers are cut along the final finish line by: (i) placing the core, including the applied fibers and tackifier, in a frame such that the portion of the core, applied fibers, and tackifier that extend beyond the final finish line lie outside of the frame; and (ii) cutting the core, including the applied fibers and the tackifier, along the final finish line. Also, preferably, consolidating the tackifier solution at the location of the final finish line comprises wrapping shrink tape around the portion of the fibers located at the location of the final finish line and heating the shrink tape to apply heat to the tackifier and cause the shrink tape to constrict.

In another form, the invention is directed to a method of preparing a reinforced core structure for a product to be formed in a resin transfer molding process utilizing a resin. The method comprises: applying fibers over a core that extend beyond the final finish line of the product to be formed, applying a tackifier solution to the fibers located at the final finish line, the tackifier solution comprising a reduced concentration of the resin utilized by the product to be formed in the resin transfer molding process; consolidating the tackifier solution at the final finish line; and cutting along the final finish line. Cutting is accomplished by placing the core, including the applied fibers and tackifier, in a frame, such that the portion of the core, applied fibers, and tackifier that extend beyond the final finish line lie outside of the frame, and cutting the core, including the applied fibers and the tackifier, along the final finish line. Again,

preferably, locally consolidating the tackifier solution comprises wrapping shrink tape around the portion of the fibers located at the location of the finish line and heating the shrink tape to apply heat to the tackifier and cause the shrink tape to constrict. Also, preferably, the tackifier solution comprises resin to be used in the resin transfer molding process diluted by a solvent.

U.S. Patent No. 5,204,033 (Pearce et al.)

Pearce et al. is directed to a method of fabricating a preform in a resin transfer molding process. The method includes locating a transport member on a mandrel. A dry fiber layer is filament wound around the mandrel over the transport member. A tackifier is applied to the dry fiber layer in the area of the transport member. After the filament wound dry fiber is wound and a tackifier applied, a compaction step may be used to maintain fiber orientation using, for example, heat-shrink tape. The filament wound fiber layer is cut from the transport member to provide a preform, which is transported to a resin transfer mold using the transport member. The preform is then resin transfer molded in a mold.

In contrast to the present invention, Pearce et al. does not disclose applying a tackifier solution only to fibers located at the location of the final finish line. Further, contrary to the remarks set forth in paragraph 2 of the Office Action, applicants see no basis in Col. 6, lines 1-11, for concluding that the tackifier solution is a reduced concentration of the resin utilized by product formed in the resin transfer molding process. Pearce et al. also does not disclose consolidating the tackifier solution only at the location of the final finish line. Nor does Pearce et al. disclose cutting along a final finish line by: placing a core, including applied fibers and tackifier, in a frame such that the portion of the core, applied fibers, and tackifier that extend beyond the final finish line lie outside of the frame; and cutting the core, including the applied fibers and the tackifier, along the final finish line.

U.S. Patent No. 5,716,686 (Black)

Black is directed to a tackified fiber material and process for manufacture. Black was cited for its alleged disclosure of solvent dilution. Black does not disclose the features of the invention described above. In particular, Black does not disclose the various features of the invention described above that are not disclosed or suggested in Pearce et al.

Argument

Claims 1 and 9, the only independent claims in this application, read as follows:

1. A method of preparing a reinforced core structure for a product to be formed by a resin transfer molding process utilizing a resin, the method comprising:

(a) applying fibers over a core that extend beyond the final finished line of the product to be formed;

(b) applying a tackifier solution **only** to the fibers located **at the location of the final finish line, the tackifier solution comprising a reduced concentration of the resin utilized by the product to be formed by the resin transfer molding process;**

(c) consolidating the tackifier solution **only at the location of the final finish line;** and

(d) cutting along the final finish line.

9. A method of preparing a reinforced core structure for a product to be formed by a resin transfer molding process utilizing a resin, the method comprising:

(a) applying fibers over a core that extend beyond the final finish line of the product to be formed;

(b) applying a tackifier solution to the fibers located at the final finish line, **the tackifier solution comprising a reduced concentration of the resin utilized by the product to be formed by the resin transfer molding process;**

(c) consolidating the tackifier solution at the finish line;
and

(d) cutting along the final finish line by:

(i) **placing the core, including the applied fibers and tackifier, in a frame such that the portion of the core, applied fibers, and tackifier that extend beyond the final finish line lie outside of the frame; and**

(ii) **cutting the core, including the applied fibers and the tackifier, along the final finish line.**

As discussed above with respect to Pearce et al. and Black, neither reference discloses the highlighted portions of Claims 1 and 9. More specifically, with respect to Claim 1, neither Pearce et al. nor Black discloses or suggests applying a tackifier solution **only** to fibers located **at the location of** the final finish line. Nor do the references disclose that the tackifier solution comprises a reduced concentration of the resin utilized by the product to be formed by the resin transfer molding process. Nor does either Pearce et al. or Black disclose consolidating a tackifier solution only at the location of the final finish line. As a result, applicants respectfully submit that Claim 1 and all the claims dependent therefrom (2-8) are clearly allowable in view of the teachings of Pearce et al. and Black.

With respect to dependent Claims 2-8, many of these claims add additional recitations that are clearly not taught or suggested by Pearce et al. or Black taken alone or in combination. For example, Claims 2, 4, 6, and 8 recite that the tackifier solution comprises resin to be used by the resin transfer molding process diluted by a solvent. Even assuming for purposes of argument that Black discloses the use of a solvent, there is no teaching or suggestion in either Pearce et al. or Black why the tackifier used in Pearce et al. would be diluted by a solvent. Further, neither Pearce et al. nor Black teaches or suggests the subject matter of Claims 3 and 7, namely consolidating a tackifier solution at the location of a final finish line by wrapping shrink tape around **only** the location of the fibers located at the location of the final finish line and heating

the shrink tape to apply heat to the tackifier and cause the shrink tape to constrict. While Pearce et al. does appear to disclose the use of shrink tape, Pearce et al. does not disclose applying it in the manner recited in Claims 3 and 7. Nor does either Pearce et al. or Black disclose the subject matter of Claim 5, namely: placing the core, including applied fibers and tackifier, in a frame such that a portion of the core, applied fibers, and tackifier that extend beyond the final finish line lie outside of the frame; and cutting the core, including the applied fibers and tackifier, along the final finish line.

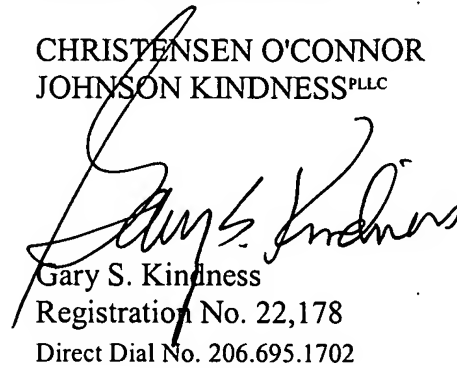
As a result, in summary, applicants respectfully submit that Claims 2-8 are allowable for reasons in addition to the reasons why Claim 1 is allowable.

With respect to Claim 9, as noted above with respect to dependent Claim 5, neither Pearce et al. nor Black discloses cutting along a final finish line by: placing a core, including applied fibers and tackifier, in a frame such that the portion of the core, applied fibers, and tackifier that extend beyond the final finish line lie outside of the frame; and cutting the core, including the applied fibers and tackifier, along the final finish line. As a result, applicants respectfully submit that Claim 9 and all the claims dependent therefrom (10-12) are clearly allowable. Applicants further submit that Claims 10-12 are allowable for additional reasons. For example, as noted above, neither Pearce et al. nor Black discloses or suggests any reason why the tackifier solution employed by Pearce et al. should be diluted by a solvent (Claims 10 and 12) or locally consolidating a tackifier solution by wrapping shrink tape around the portion of the fibers located at the location of a finish line and heating the shrink tape to apply heat to the tackifier and cause the shrink tape to constrict (Claim 11), particularly when considered in combination with the subject matter of Claim 9. Thus, Claims 10-12 are submitted to be allowable for reasons in addition to the reasons why Claim 9 is allowable.

In summary, applicants respectfully submit that all the claims of this application are clearly allowable in view of the cited and applied references. Consequently, early and favorable action allowing these claims and passing this application to issue is respectfully solicited.

Respectfully submitted,

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